River Instream Flow Stewards
2004 Annual Report

The mission of the Riverways Programs is to promote the restoration and protection of the ecological integrity of the Commonwealth's rivers, streams and adjacent lands. All the Riverways Programs are based on the belief that local action is key to river protection. Riverways staff work side-by-side with local citizens, town officials and watershed associations to achieve the goals of restoration and protection of the state's riverine ecosystems. Goals include (1) protecting and restoring water quality,(2) protecting healthy stream flows; (3) protecting land along rivers and streams, (4) improving habitat for wildlife and fish in river corridors; (5) promoting pubic access to and/or along rivers for river-friendly recreation.

♦ ♦ ♦ ♦ ♦

Riverways' River Instream Flow Stewards (RIFLS) is an innovative, science-based program that addresses the harm caused to rivers and streams by depleted or altered stream flow, an environmental problem that is just beginning to receive the attention it deserves. To make good decisions about human water use while providing for the water needs of natural communities, policy and decision makers need to understand instream flow issues and base their decisions on facts. Without quantitative stream flow data, decision makers are forced to guess at potential environmental impacts of specific proposals. Surprisingly, this data is not currently available for most Massachusetts streams and rivers. To address this need for instream flow data, RIFLS brings together a diverse group of partners and provides technical assistance to document stream flow in order to protect and restore more natural flow regimes and the aquatic communities they support.

Stream flow and water quantity have been hot topics during recent years, and even during wet years some rivers and streams have run dangerously low or dry. Although streams and rivers in Massachusetts have a natural low-flow period in late summer and early fall, poor water management practices and consumptive uses such as excessive lawn watering, leaky pipes, sewers that discharge to other watersheds, manipulation of flows at dams, and urban sprawl can exacerbate low flow conditions and cause additional stress or even death to aquatic organisms and communities. In many cases the cause of unnaturally low flow is unknown and requires further investigation. Responding to the increasing concern over stream flow, the pilot River Instream Flow Stewards (RIFLS) program began training volunteers to record stream flow measurements on their local streams.

First Herring Brook in Scituate (left) and the Jones River in Kingston (right) were nearly dry again this year, even though the region again received above-average precipitation.

Commonwealth of Massachusetts
Riverways Programs

RIFLS Receives MET Grant!

Riverways received a grant for $72,350 from the Massachusetts Environmental Trust to develop the RIFLS program in 2004-2005. As a result of this grant, two part-time Technical Assistants were hired to enable Riverways to work with new groups on stream flow issues. If you know of anyone who is interested in receiving assistance collecting, interpreting, and using stream flow data in 2005 please let us know!

In addition to funding RIFLS field and office work, the grant from MET will also help fund a **statewide stream flow conference**, to be held on Friday, **April 29, 2005** (tentative date). The conference will cover the latest progress in determining biological stream flow needs, new developments in state policies that affect stream flow, and cutting-edge techniques for reducing water demand, managing water systems, and recharging and reusing water to maintain natural water budgets and stream flow patterns. Stay tuned for more information!

Partnerships

Protecting and restoring more natural stream flows can be a daunting task and one that requires the cooperation of many groups. Partnerships are a key component of the RIFLS program that raise awareness of stream flow as a real issue in Massachusetts and enable stream flow data to be used locally and regionally to improve habitat, water quality, and water quantity conditions in the Commonwealth's rivers. Through the local steering committees, this year's RIFLS participants were able to enhance other ongoing initiatives and develop stronger ties to their river communities.

2004 RIFLS Participants & Partners

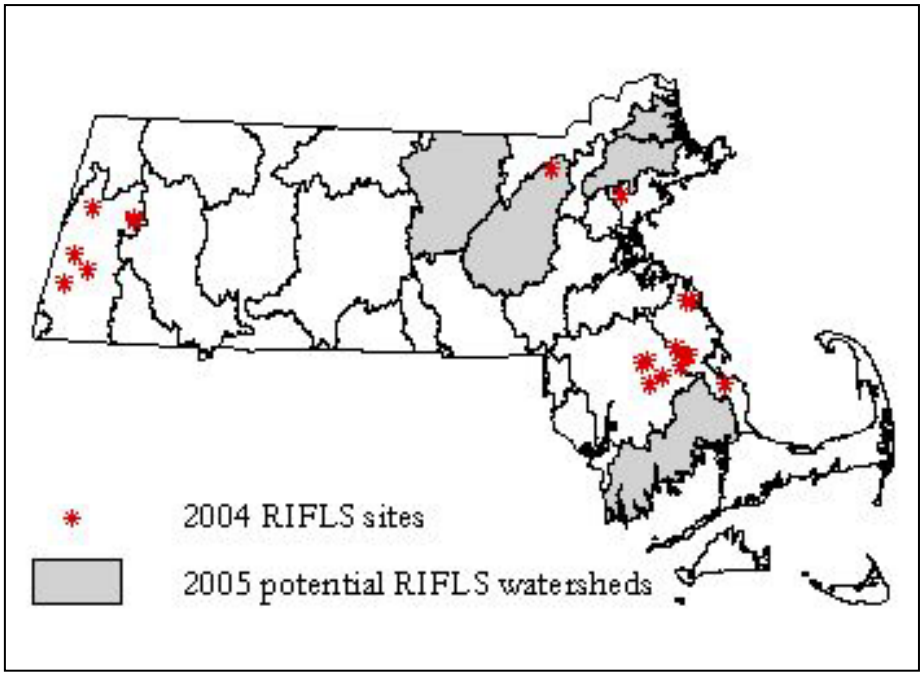
- Saugus River Watershed Council
- Taunton River Wild & Scenic Committee
- Organization for the Assabet River
- Housatonic Valley Association & Friends of the Williams River
- Eel River Watershed Association
- UMass Estuaries Project
- Bridgewater State Watershed Access Lab
- First Herring Brook Watershed Initiative
- Jones River Watershed Association

Monitoring & Assessment

Local stewardship is at the heart of the RIFLS program and RIFLS volunteers came through again this year with flying colors to create a comprehensive record of water depths, stream flow and relevant observations at their sites.

2004 Monitoring Milestones:

- Staff gages installed and volunteers active on 8 additional rivers
- 79 stream flow measurements made by Riverways staff
- 1,736 water depth measurements recorded by volunteers!
- 6 volunteers completed the pilot RIFLS Certification (see below)



Pilot RIFLS Certification Program

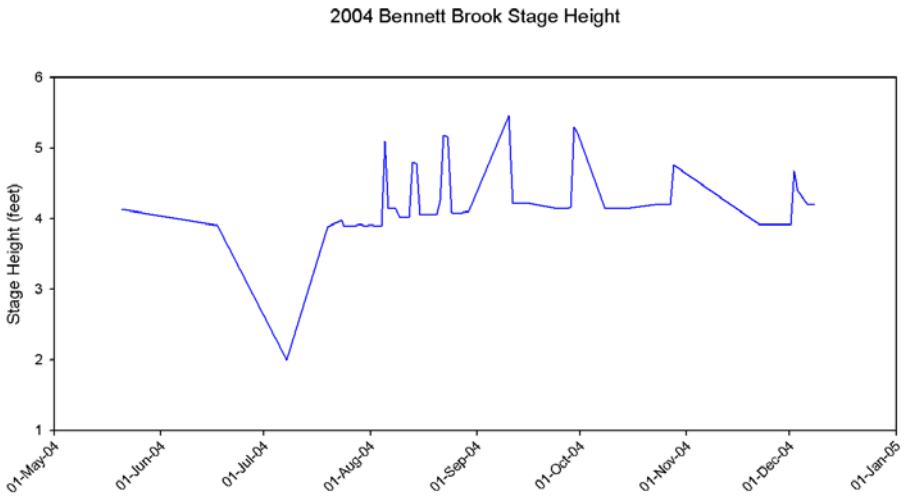
Last July, six RIFLS volunteers completed the pilot RIFLS Certification Program. This program was designed to teach volunteers how to measure stream flow using a velocity meter, wading rod and tape measure. In addition, participants became certified to train new RIFLS volunteers for their sites. The program involved one evening of classroom instruction followed by a cold, rainy field day with Riverways and USGS staff.

Once volunteers were trained in the proper protocols, they were able to measure stream flow independently and use this information to verify the rating curve(s) developed for their RIFLS site(s). This is a crucial step in ensuring the long term sustainability of data collection efforts because volunteers will be able to document the accuracy of their data independently. In addition, this will allow Riverways' staff to spend more time engaging additional groups across the state in protecting and restoring stream flow in their rivers.

Riverways is pleased to be offering the RIFLS Certification Program again this summer. **If you or another current RIFLS volunteer is interested in participating, please contact Margaret Kearns at (617)-626-1533!**

Mary Ellen Schloss and Sandie Kelly measure stream flow in First Herring Brook, Scituate, after completing the RIFLS Certification Program.

RIFLS Stream Flow Protection & Restoration



Bennett Brook, Hinsdale

The Housatonic Valley Association is concerned that flow in Bennett Brook can be dangerously low due to the operation of the outlet of Ashmere Lake just upstream. The first year of RIFLS water depth data (above) show that water level patterns in Bennett Brook are largely unrelated to season and precipitation, possibly as a consequence of flow manipulation at Ashmere Lake. In the coming year, this data may be used to improve the operation of the lake outlet to more closely mimic natural seasonal stream flow patterns.

Eel River, Plymouth

RIFLS stream flow data was used by the Eel River Watershed Association to provide constructive comments on the Environmental Impact Report for the Waverly Oaks Golf Club, one of five golf courses in the little Eel River watershed. The data showed that the Eel River has a very high and

constant baseflow, which provides habitat for several rare species. Because these organisms are adapted to relatively high summer baseflows, stream depletion caused by water withdrawals is a serious threat. The Eel River Watershed Association is working with the Town of Plymouth, the Department of Environmental Protection, and the Waverly Oaks Golf Club to promote reuse of the town's treated wastewater for golf course irrigation. This solution not only reduces water withdrawals from the headwaters of the Eel River watershed, but also reduces the nutrient load entering this sensitive river system.

Algal blooms and iron precipitation problems were exacerbated by unnaturally low stream flows in 2004, a relatively wet year.

Saugus River, Lynnfield

The Saugus River Watershed Council is using RIFLS protocols to document the success of their voluntary agreement with the Lynn Water and Sewer Commission to provide seasonal flows for herring restoration. Documenting adequate stream flow is only one part of restoring herring to the Saugus River, but arguably the most difficult because the river is the main source of water for the City of Lynn.

Stony Brook, Kingston

At the request of the Jones River Watershed Association, a series of stream flow measurements were made by RIFLS staff to document the range of flows that could be expected in Stony Brook, a small coastal stream in Kingston. These data will be used to design anadromous fish passage alternatives around a currently impassable dam on a property that will soon be redeveloped.

Larrywaug Brook, Stockbridge

Faithful RIFLS volunteer Shep Evans monitored stream flow during the drawdown of Lake Mahkeenac (a.k.a. Stockbridge Bowl) to control nuisance aquatic plants. By providing timely stream flow data to the lake association and town personnel, the Conservation Commission's Orders of Conditions for the drawdown could be monitored and stream flows adjusted accordingly. Last year's leaf clogging problems at the outlet structure and accompanying downstream flow fluctuations were noticeably reduced this year thanks to a larger trash rack mesh size installed as a result of Shep's efforts.

First Herring Brook, Scituate

Inflow to Scituate's drinking water reservoir on First Herring Brook was never documented before the First Herring Brook Watershed Initiative began working with RIFLS in 2003. The data is being shared with Scituate's Water Department, Water Board, and Board of Selectmen to help find a solution to the Town's growing water demands that sustains the natural aquatic ecosystem as well as providing for the needs of the community.